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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/518,844
Filing Date: December 21, 2004
Appellant(s): SALIOU ET AL.

Mr. Gregory L. Thorne
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on June 22, 2009 appealing from the Office action mailed January 22, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2001/0011347	Narayanaswamy	08/2001
6,308,265	Miller	10/2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 4 – 8, and 12 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Appl. 2001/0011347, filed by Shanthala Narayanaswamy et al. (hereinafter "Narayanaswamy"), in further view of U.S. Patent 6,308,265, invented by Gregory L. Miller (hereinafter "Miller").

1. Regarding Claims 1 and 2, Narayanaswamy discloses a transmission system and a method [Title; Fig. 3; Para. 0007, 0008, and 0009] of downloading software programs into a storage unit, the software programs including a boot code and an application code [Para. 0003 and 0004; upgrading and remapping of the boot and main firmware codes], the boot code allowing downloading of the application code [Para. 0035, 0036, and 0038; boot code checks data to determine if new main firmware is available, then downloads new firmware], the storage unit comprising at least a current boot code in a first location [Fig. 2; Para. 0007; two separate regions to store boot code, one active (block 22), one inactive (block 24)], the method comprising the following

steps: upon a download request, downloading a new boot code in a second location, which does not overwrite the current boot code [Para. 0007, Lines 5-8; two separate regions to store boot code, one active, one inactive; download new boot code into inactive region]; indicating that the new boot code in the second location replaces the current boot code [Para. 0029 and 0030; upon verification of download, terminal reboots and overwrites the processor vector table with the vector table copy of the new boot code]; downloading a new application code associated to the new boot code in a location which does not overwrite the new boot code in the first location [Fig. 2; Para. 0035, 0036, 0037, and 0038; if new main firmware is found, it is downloaded to another memory location (block 26) different from the new boot code]; and indicating that the new application code is valid [Para. 0038; reset command after successful transfer].

Narayanaswamy further discloses that the size of the boot code blocks 22, 24 and the main firmware block 26 are not fixed and can be changed through the upgrade procedure [Para. 0041]. The size of the main firmware block 26 is limited by the adjacent block 24 (update boot code block) and the size of the memory itself [Para. 0041]. Additionally, Narayanaswamy discloses that a series of upgrades can result in the moving or shrinking of block 22 (original boot block) [Para. 0041]

Narayanaswamy, however, does not disclose that the new boot code is downloaded in the section that has the current application code and overwrites the current application code. Nor does Narayanaswamy disclose of writing the new boot code in place of the current boot code in the first location, indicating that the new boot

code written in the first location replaces the new boot code written in the second location.

Miller discloses that the new boot code is downloaded in the section that has the current application code and overwrites the current application code [Col. 2, Lines 11-16; the other parts of the segment can contain other data such as the updatable BIOS]. Miller further discloses of a method and apparatus for updating boot and BIOS code with steps that further include writing the new boot code in place of the current boot code in the first location, [Fig. 3; Col. 3, lines 40-51; updating the first data segment with new data, include boot block code after data is copied into a second data segment] indicating that the new boot code written in the first location replaces the new boot code written in the second location [Fig. 3; Col. 6, Line 44 – Col. 7, Line 21; after the update of the first location with new data, if the boot blocks from the first and second regions match, then the first block is write protected (indicating this is the new boot code) and used to boot the computer].

It would have been obvious to one skilled in the art at the time of the invention to incorporate the teachings of Miller with Narayanaswamy by ensuring that the same boot block is copied from the second location to the first location before the portions of the second location can be updated within the nonvolatile storage location in the computer.

The motivation to do so is to will allow a larger amount of memory within the memory device to be allocated for the storage of the updated main firmware. Furthermore, this allows the second region to become the backup boot block image if

there was a power failure occurring sometime during the updating of the first boot block to allow [See Miller, Col. 7, Lines 22-28].

2. Regarding Claims 4 and 6, Narayanaswamy, in view of Miller, discloses all the limitations of Claim 2 above. Miller further discloses that the boot sector is located in a protected storage area of the storage unit [Col. 3, Lines 31-35]. Miller also discloses that the current boot code is stored in a protected area of the storage unit, which area can be unprotected to be overwritten under specific software conditions [Col. 3, Lines 35-45].

3. Regarding Claim 5, Narayanaswamy, in view of Miller, discloses all the limitations of Claim 2 above. Miller further discloses that the boot sector is located in a protected storage area separate from the storage unit [Col. 4; Lines 45-53; boot block code stored on EPROM while updating is done in flash memory].

4. Regarding Claim 7, Narayanaswamy, in view of Miller, discloses all the limitations of Claim 2 above. Miler further discloses that the new software program is stored in an area of the storage unit, which area can be protected and unprotected, to be overwritten under specific software conditions [Col. 3, Lines 35-45].

5. Regarding Claim 8, Narayanaswamy, in view of Miller, discloses all the limitations of Claim 2 above. Narayanaswamy further discloses that the new software program includes an intermediate application code, which is a link between the current application code and the new application code enabling a user to parameterize the new software program [Para. 0034, 0035, 0036, 0037, 0038; the application requests the active boot code to start checking a checksum on the data to verify that there is new

firmware and confirms the checksum after the transfer is complete].

6. Regarding Claims 12 - 15, Narayanaswamy, in view of Miller, in further view of IBM, discloses all the limitations of Claims 1, 2, and 8 above. Narayanaswamy further discloses a transmission system comprising of a transmitter for transmitting software programs and at least a receiver for receiving software programs transmitted by a transmission system [Fig. 3; transmission of new codes are from a separate computer and then received and processed by microprocessor within the electronic device], the receiver comprising means for carrying out the method as claimed in any one of Claims 1 to 8 as stated above. Narayanaswamy also discloses of a computer program product stored on a computer readable medium which when received by a receiver, configures for a receiver computing a set of instructions, which when loaded into the receiver, causes the receiver to carry out the method as claimed in any one of Claims 1 to 8 [Para. 0003; main code is used for regular operation of the device]. Furthermore, Narayanaswamy discloses of a signal for carrying a computer program, the computer program being arranged to carry out the method as claimed in Claim 1 [Fig. 3; transmission from a transmitter to a receiver can be by either analog or digital signal].

(10) Response to Argument

I. With regards to Claims 1 and 2, the Appellant's first argues that Narayanaswamy "has little to do with the teaching of the present application as recited in the claims" [See Applicant's Appeal Brief ("Appeal Brief") Pg. 12, 1st Para.] while stating that the cited reference merely shows a memory system that utilizes two boot code units, one being

active and the other being inactive to update the device with new boot code in the inactive unit [Id.]. The Appellant, however, does not attempt to distinguish the claims over the prior art. Narayanaswamy discloses a system for providing new boot code for a processor where the memory has one region that has active boot code (first location) and another region that has inactive boot code (second location) where new boot code is downloaded to the region with the inactive boot code to update the processor with the new boot code [Fig. 4A; Para. 0007]. Narayanaswamy further discloses that once the second location is updated with new boot code, the system indicates the new boot code is the second location replaces the current boot code [Fig. 4B; Para. 0029]. Additionally, Narayanaswamy discloses that the firmware can also be upgraded [Fig. 4A; Para. 0033-0038] and that the starting addresses and memory block sizes for the new boot code and the new application code are not fixed and can change through the upgrade procedure to fit the new boot code and application code within the size of memory within the device [Para. 0041].

II. With regards to Claims 1 and 2, the Appellant argues that the cited references cannot be combined because Miller "shows a vastly different and incompatible solution to Narayanaswamy" because "the original boot block is overwritten by a new boot block" [See Appeal Brief Pg. 13, 3rd Para.]. As stated in the Advisory Action dated April 9, 2009, "original boot block" is synonymous with "first location" where the current boot code resides. The Miller system copies the current boot block code from a first region of data and stores that copy of data in a second region of data that does not overwrite the first portion of data so that an update of the boot block code in the first region of

data can be performed [See Fig. 3, Col. 5, Lines 45-64]. Miller and Narayanaswamy are both in the field of updating boot block code in a different region of memory than where the existing boot block code is stored. Narayanaswamy and Miller are compatible systems since both provide flexibility with regard to memory block size and location, within the limits of the memory itself, which allow the overwriting of the original boot block based on the requirements of the upgrade and are within the same field of endeavor.

Furthermore, the incorporation of Miller to reject the current application under Section 103(a) is to notify the Appellant that the steps of writing to a second block in memory and then copying that information into the first block in memory were well known within the art as far back as September 30, 1998. Those essential steps, as claimed within the application, were not specifically disclosed in Narayanaswamy.

The Appellant should not be overly rigid in determining obviousness. The Supreme Court in KSR stated that the Federal Circuit had erred by applying the teaching-suggestion-motivation (TSM) test in an overly rigid and formalistic way. KSR, 550 U.S.at ___, 82 USPQ2d at 1391. [See MPEP 2141].

As stated in *MPEP 2141, Section III*, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there

must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" KSR, 550 U.S. at ___, 82 USPQ2d at 1396. Exemplary rationales that may support a conclusion of obviousness include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) " Obvious to try " – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. See MPEP § 214 3 for a discussion of the rationales listed above along with examples illustrating how the cited rationales may be used to support a finding of obviousness. See also

MPEP § 2144 - § 2144.09 for additional guidance regarding support for obviousness determinations.

As stated above in the Grounds of Rejection, Narayanaswamy discloses that the updated main firmware may vary in size and that block of memory can be expanded to accommodate the updated main firmware [Para. 0041]. Since the size of the main firmware block 26 is limited by the adjacent block 24 [See Fig. 2], it is anticipated that an update to the main firmware will require a larger block of memory than is allocated currently in block 26 [Para. 0041].

Incorporating the well known steps in Miller to Narayanaswamy resolves this issue by copying the updated boot code in block 24 to the current boot cold block 22 before updating the main firmware. This will allow that the maximum amount of memory available within the memory device is allocated to the updating of the main firmware.

The fact that Miller and Narayanaswamy solve a similar problem (backup copy of the boot code is accessible during boot code updating) with different methods, alone, does not refute the obviousness and motivation to combine the two. It can be used to further support the Examiner's rationale as to why the combination of the two arts will result in predictable results since the use of a known technique (Miller) to improve a similar method (Narayanaswamy) for the same reasoning (ensure that a working boot code is still available in case of errors in the update process) shows further support of obviousness (See MPEP 2141).

The Appellant further argues that Narayanaswamy provides good reasons for not maximizing allowable memory for updating main firmware, yet it is clear that

Narayanaswamy discloses the shrinking of the inactive boot block to accommodate the increase in size of the firmware memory block [Para. 0041; block 26 (firmware) can be increased by moving and/or shrinking block 22 (inactive boot block) and block 26 (firmware)]. The adaptability of the Narayanaswamy system allows the writing of the firmware block on the memory device to overwrite the inactive boot block to maximize the amount of memory available to update the firmware.

The Appellant further argues that there is no support for the motivation to combine the two references found within either Narayanaswamy or Miller. The adaptability of the Narayanaswamy system provides the motivation to combine the teachings of the two cited references since the limitation on increasing the size of the active boot block, firmware block, and inactive boot block are the size of the memory itself and the size of the adjacent boot blocks [See Para. 0041]. The Appellant stating that there are innumerable ways to provide for a larger amount of memory, such as providing for a larger memory since neither of Narayanaswamy or Miller are limited to a given memory size is irrelevant. It is clear that Narayanaswamy discloses the size of the boot block and firmware block are limited by the size of the memory within the device itself [Para. 0041] and sufficient motivation is provided within the cited references.

III. The Appellant argues that Narayanaswamy in view of Miller does not disclose the limitations of the pending claims [See Appeal Brief Pg. 18]. As stated above in the Grounds of Rejection, the Examiner has mapped out how each limitation is taught from the cited references, how the two references are combinable, and the motivation to do

so. Furthermore, the Examiner has further addressed why the cited references are combinable in Section II above, including the showing that the two references are in the same field of endeavor.

IV. The Appellant has not raised any arguments with regards to Claims 4 – 8 and 12 - 15, which are respectively dependent on Claims 1 and 2.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Tae K. Kim/

Tae K. Kim

Examiner, Art Unit 2453

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